

Publications

Refereed Literature

1. Desaubies, Y., C.-S. Chiu and J. Miller, "Acoustic Mode Propagation Through Mesoscale Eddies in the Ocean," J. Acoust. Soc. Am., 80, 1148-1160, 1986.
2. Lynch, J.F., R.C. Spindel, C.-S. Chiu, J.H. Miller, and T. Birdsall, "Results from the MIZEX '84 Preliminary Tomography Experiment," J. Geophys. Res., 92(C7), 6886-6902, 1987.
3. Chiu, C.-S. and Y. Desaubies, "A Planetary Wave Analysis using the Acoustic and Conventional Arrays in the 1981 Ocean Tomography Experiment," J. Phys. Oceanogr., 17(8), 1270-1287, 1987.
4. Chiu, C.-S., Lynch J.F. and O. Johannessen, "Tomographic Resolution of Mesoscale Eddies in the MIZ - A Preliminary Study," J. Geophys. Res., 92(C7), 6886-6902, 1987.
5. Miller, J.H., J.F. Lynch, and C.-S. Chiu, "Estimation of sea surface spectra using acoustic tomography," J. Acoust. Soc. Am., 86(1), 326-345, 1989.
6. Lynch, J.F., J.H. Miller and C.-S. Chiu, "Phase and travel-time variability of adiabatic acoustic normal modes due to scattering from a rough sea surface, with applications to propagation in shallow-water and high-latitude regions," J. Acoust. Soc. Am., 85(1), 83-89, 1989.
7. Chiu, C.-S. and L.L. Ehret, "Computations of sound propagation in a three dimensionally varying ocean - a coupled mode approach," in Computational Acoustics: Ocean-Acoustic Models and Supercomputing (Lee, Cakmak and Vichnevetsky, editors), Elsevier (North-Holland), 187-202, 1990.
8. Newhall, A.E., J.F. Lynch, C.-S. Chiu, and J.R. Daugherty, "Improvements in three dimensional raytracing codes for underwater acoustics," in Computational Acoustics: Ocean-Acoustic Models and Supercomputing (Lee, Cakmak and Vichnevetsky, editors), Elsevier (North-Holland), 169-185, 1990.
9. Miller, J.H. and C.-S. Chiu, "Localization of the sources of short duration acoustic signals," J. Acoust. Soc. Am., 92(5), 2997-3000, 1992.
10. Miller, J.H., J.F. Lynch, C.-S. Chiu, E.L. Westreich, J.S. Gerber, R. Hippenstiel, and E. Chaulk, "Acoustic measurements of surface gravity wave spectra in Monterey Bay using mode travel time fluctuations," J. Acoust. Soc. Am., 94(2.1), 954-974, 1993.
11. Chiu, C.-S. and L.L. Ehret, "Three-dimensional acoustic mode propagation through

the Gulf Stream," in *Oceanography and Acoustics: Coupled Prediction and Propagation Models* (Robinson and Lee, editors), American Institute of Physics, 179-197, 1994.

12. Lynch, J.F., A.E. Newhall, C.-S. Chiu, and J.H. Miller, "Three-dimensional ray acoustics in a realistic ocean," in *Oceanography and Acoustics: Coupled Prediction and Propagation Models* (Robinson and Lee, editors), American Institute of Physics, 198-232, 1994.

13. Chiu, C.-S., A.J. Semtner, J.H. Ort, and J. H. Miller, "A ray variability analysis of sound transmission from Heard Island to California," *J. Acoust. Soc. Am.*, 96(4), 2380-2388, 1994.

14. Chiu, C.-S., "Downslope Modal Energy Conversion," *J. Acoust. Soc. Am.*, 95(3), 1654-1657, 1994.

15. Chiu, C.-S., J.H. Miller, and J.F. Lynch, "Inverse Techniques for Coastal Acoustic Tomography," in *Environmental Acoustics* (D. Lee and M. Schultz editors), World Scientific, 917-931, 1994.

16. Miller, J.H., C.-S. Chiu, and J.F. Lynch, "Signal Processing for Coastal Acoustic Tomography," in *Environmental Acoustics* (D. Lee and M. Schultz editors), World Scientific, 899-916, 1994.

17. Baggeroer A.B., B. Sperry, K. Lashkari, C.-S. Chiu, J. H. Miller, P. N. Mikhalevsky, K. Von Der Heydt, "Vertical array receptions of the Heard Island Feasibility Transmissions," *J. Acoust. Soc. Am.*, 96(4), 2395-2413, 1994 .

18. Chiu, C.-S., J.H. Miller, W.W. Denner, "Modeling of Backscatter and Barrier Sonar System Concepts using a Coupled Normal-Mode Approach (U)," *J. Underwater Acoust.*, Vol. 1, 103-116, 1995.

19. Chiu, C.-S., J.H. Miller, W.W. Denner, and J.F. Lynch, "A Three-Dimensional, Broadband, Coupled Normal-Mode Sound Propagation Modeling Approach," in *Full Field Inversion Methods in Ocean and Seismic Acoustics* (O. Diachok, A. Caiti, P. Gerstoft and H. Schmidt editors), Kluwer Academic Publishers, 57-62, 1995.

20. Chiu, C.-S., J.H. Miller, W.W. Denner, and J.F. Lynch, "Forward Modeling of the Barents Sea Tomography Vertical Line Array Data and Inversion Highlights," in *Full Field Inversion Methods in Ocean and Seismic Acoustics* (O. Diachok, A. Caiti, P. Gerstoft and H. Schmidt editors), Kluwer Academic Publishers, 237-242, 1995.

21. Chiu, C.-S., J.H. Miller and J.F. Lynch, "Forward coupled-mode propagation modeling for coastal acoustic tomography," *J. Acoust. Soc. Am.*, 99(2), 793-802, 1996.

22. J.F. Lynch, G. Jin, R. Pawlowicz, D. Ray, C.-S. Chiu, J.H. Miller, R.H. Bourke, A.R. Parsons, A.J. Plueddemann, R. Muench, "Acoustic travel time perturbations due to

shallow water internal waves and internal tides in the Barents Sea Polar Front: theory and experiment," J. Acoust. Soc. Am., 99(2), 803-821, 1996.

23. Parsons, A.R., R.H. Bourke, R. Muench, C.-S. Chiu, J.F. Lynch, J.H. Miller, A.J. Plueddemann, R. Pawlowicz, "The Barents Sea Polar Front in Summer," J. Geophys. Res., 101(C6), 14201-14221, 1996.

24. Jin, G., J.F. Lynch, C.-S. Chiu, and J.H. Miller, "A theoretical and simulation study of acoustic normal mode coupling effects due to the Barents Sea Polar Front, with applications to acoustic tomography and matched field processing," J. Acoust. Soc. Am., 100(1), 193-205, 1996.

25. Staten, R.A., C.-S. Chiu and A.J. Semtner, "A Simulation Study of the Variability of Acoustic Transmissions from Hawaii to Monterey," Theoretical and Computational Acoustics (Editors: D. Lee, Y-H Pao, M.H. Schultz, and Y-C Teng), World Scientific Publishing Co., 505-525, 1996.

26. Chiu, C.-S., C.W. Miller and J.F. Lynch, "Optimal modal beamforming of bandpass signals using an undersized, sparse vertical hydrophone array: theory and a shallowwater experimentation," IEEE J. Oceanic Engineering, 22(3), 522-533, 1997.

27. SWARM Group (J. Apel, M. Badiey, C.-S. Chiu, S. Finnette, R. Headrick, J. Kemp, J. Lynch, A. Newhall, M. Orr, B. Pasewark, D. Tielbuerger, A. Turgut, K. von der Heydt, S. Wolf, "An overview of the 1995 SWARM shallow water internal wave acoustic scattering experiment," IEEE J. Oceanic Engineering, 22(3), 465-500, 1997.

28. Headrick, R.H., J.F. Lynch, J.N. Kemp, A. Newhall, K. von der Heydt, J. Apel, M. Badiey, C.-S. Chiu, S. Finette, M. Orr, B. Pasewark, A. Turgot, S. Wolf, and D. Tielbuerger, "Acoustic normal mode fluctuation statistics in the 1995 SWARM internal wave scattering experiment," J. Acoust. Soc. Am., **107** (1), 201-220, 2000.

29. Headrick, R.H., J.F. Lynch, J.N. Kemp, A. Newhall, K. von der Heydt, J. Apel, M. Badiey, C.-S. Chiu, S. Finette, M. Orr, B. Pasewark, A. Turgot, S. Wolf, and D. Tielbuerger, "Modeling mode arrivals in the 1995 SWARM experiment acoustic Transmissions," J. Acoust. Soc. Am., **107** (1), 221-236, 2000.

30. Orcutt, J., C. deGroot-Hedlin, W. Hodgkiss, W. Kuperman, W. Munk, F. Vernon, P. Worcester, E. Bernard, R. Dziak, C. Fox, C.-S. Chiu, C. Collins, J. Mercer, R. Odom, M. Park, D. Soukup, R. Spindel, "Long Term Observations in Acoustics – the Ocean Acoustic Observatory Federation," Oceanography, **13** (2), 57-63, 2000.

31. Colosi J.A., J.F. Lynch, R.C. Beardsley, G. Gawarkiewicz, C.-S. Chiu and A. Scotti, "Observations of nonlinear internal waves on the New England continental shelf during summer shelfbreak PRIMER, J. . Geophys. Res., in press, 2000.

32. Chiu, C.-S., S. R. Ramp and J. F. Lynch, "The ASIAEX 2000 Preliminary Experiment in the East China Sea (ECS)," Proceedings of the 5th International

Conference in Theoretical and Computational Acoustics, Beijing, China, 2001, submitted.

33. Lermusiaux, P. F. J., C.-S. Chiu and A. R. Robinson, "Modeling Uncertainties in the Prediction of the Acoustic Wavefield in a Shelfbeak Environment," Proceedings of the 5th International Conference in Theoretical and Computational Acoustics, Beijing, China, 2001, submitted.

Non-refereed Literature

1. Lynch, J.F., J.H. Miller, G.V. Frisk and C.S. Chiu, "Multiple Scattering of Normal Modes from Rough Surfaces with Applications to Shallow Water Acoustics and Ocean Acoustic Tomography," Proceedings of International Symposium on Multiple Scattering of Waves in Random Media and Random Rough Surfaces, Penn. State U., July 29-Aug. 2, 1985.

2. Lynch, J.F. and C.S. Chiu, "A report on the 3-d acoustic working group meeting, Long Beach, MS, July 7-8," Woods Hole Oceanographic Institution Technical Report, June 1989.

3. Von Der Heydt, K., J. Kemp, J. F. Lynch, J. H. Miller, and C.-S. Chiu, "Shallow Water Tomography in the Barents Sea using LAN Telemetry," Woods Hole Oceanographic Institution Technical Report, October 1992.

4. Chiu, C.-S., "Downslope Modal Energy Conversion," ATOC Occasional Notes, No. 10., 1993.

5. Von Der Heydt, K., J. Kemp, J. F. Lynch, J. H. Miller, and C.-S. Chiu, "Barents Sea Shallow Water Tomography," Sea Technology, 55-59, August 1993.

6. Miller, J.H., J.K. Kresge, C.-S. Chiu, and P. Barnikel, "Localization of Submarine Transients in Shallow Water (U)," Naval Postgraduate School Technical Report NPSUW-94-001, January 1994. (SECRET-NOFORN Document)

7. Ly, Le Ngoc and C.-S. Chiu, "Coastal Acoustic Tomography Data Constraints Applied to a Coastal Ocean Circulation Model," Naval Postgraduate School Technical Report NPS-OC-94-001, April 1994.

8. Miller, J.H., J.L. Benson, C.-S. Chiu and S. Greineder, "Localization of Submarine Transients in Shallow Water: FY94 Results (U)," Naval Postgraduate School Technical Report NPS-UW-95-001, January 1995. (SECRET-NOFORN Document)

9. Miller, J.H., J. Benson, C.-S. Chiu, K.B. Smith, "FY95 Results: Transient Localization Project at NPS," Naval Postgraduate School Technical Report NPS-UW-96-001, April 1996.

10. Chiu, C.-S. and W. W. Denner, "Report of the Office of Naval Research USA-China

Conference on Shallow-Water Acoustics," Naval Postgraduate School Technical Report NPS-OC-97-001, January 1997.

11. Chiu, C.-S. and J. F. Lynch, "Acoustic tomography in shallow water: issues, method and experimental results," in *Shallow-Water Acoustics* (R. Zhang and J. Zhou Editors), China Ocean Press, 465-470, 1997.

12. J.F. Lynch, G.G. Gawarkiewicz, C.-S. Chiu, R. Pickart, J.H. Miller, K.B. Smith, A. Robinson, K. Brink, R. Beardsley, B. Sperry, and G. Potty (1997), "Shelfbreak PRIMER - An integrated acoustic and oceanographic field study in the mid-Atlantic Bight," in *Shallow-Water Acoustics* (R. Zhang and J. Zhou Editors), China Ocean Press, 205-212, 1997.

13. Chiu, C.-S., S.-L. Ng, and W.W. Denner, "Estimating the properties of the sound field in a shelf region near the shelfbreak," Proceedings of the 6th Western Pacific Regional Acoustics Conference, Volume 1, 329-334, 1997.

14. Chiu, C.-S., and W.W. Denner, "Report on the Office of Naval Research International Workshop on Shallow-Water Acoustics, San Francisco, December 8-9, 1997," Naval Postgraduate School Tech. Rept. NPS-OC-98-002PR, March 1998.

15. Chiu, C.-S., and W.W. Denner, "Report on the Office of Naval Research Phase II International Workshop on Shallow-Water Acoustics, Seattle, June 27, 1998," Naval Postgraduate School Tech. Rept. NPS-OC-98-005PR, September 1998.

16. Chiu, C.-S., T. Morvillez, and C.A. Collins, "Monitoring temperature variability along the California coast using acoustic tomography," Proceedings of the 16th International Congress on Acoustics and the 135th ASA Meeting of the Acoustical Society of America, 387-388, 1998.

17. Chiu, C.-S., C.A. Collins, C.A. Hager, C.W. Miller, T.C. Moore, M.R. Rocheleau, K. Lashkari and S. Hayes, "Auto-detection and censusing of blue whale vocalizations along the central California Coast using a bottom-lying hydrophone array," Proceedings of the Ocean International Conference, Singapore, 435-440, 1999.

18. Chiu, C.-S., "Realistic Simulation Studies of Acoustic Signal Coherence in the Presence of an Internal Soliton Wavepacket," in The 1998 WHOI/IOS/ONR Internal Solitary Wave Workshop: Contributed Papers (T. F. Duda and D. M. Farmer editors), WHOI Technical Report 99-07 12-17, 1999.

19. Denner, W. W., C.-S. Chiu, and S. R. Ramp, "Report on the Office of Naval Research Phase III International Workshop on Shallow-Water Acoustics, Alyeska Resort, Girdwood, Alaska, July 12 - 15, 1999," NPS Technical Report NPS-OC-00-001PR, 40pp., 2000.

20. Rago, T., C.A. Collins, C.-S. Chiu, P. Worcester, and C. G. Castro, "Oceanographic Data from Sur Ridge (36.3°N, 122.4°W) to Hoke Seamount (32.1°N, 126.9°W), May

1999," NPS Technical Report NPS-OC-00-002, 58 pp, 2000.

Conference Presentations with Published Abstracts

Invited

1. Chiu, C.-S., and A.J. Semtner, "A simulation study of cross-basin sound transmission from Heard Island to California," San Diego ASA Meeting, November 26-30, 1990. (Invited)
2. Chiu, C.-S., and J.H. Miller, "On the use of ocean dynamics to improve acoustic tomography estimates," Baltimore ASA Meeting, April 29-May 3, 1991. (Invited)
3. Baggeroer, A.B., K. Lashkari, J.H. Miller, C.-S. Chiu, G. Frogner, P.N. Mikhalevsky, and K. von der Heydt, "Vertical array resolution of the normal modes from the Heard Island signals," Houston ASA Meeting, 4-8 November, 1991. (Invited)
4. Chiu, C.-S., J.H. Miller, and J.F. Lynch, "Inverse Techniques for Coastal Acoustic Tomography," International Conference on Theoretical and Computational Acoustics, Mystic, Ct, 5-9 July, 1993. (Invited)
5. Miller, J.H., C.-S. Chiu, and J.F. Lynch, "Signal Processing for Coastal Acoustic Tomography," International Conference on Theoretical and Computational Acoustics, Mystic, CT, 5-9 July, 1993. (Invited)
6. J.F. Lynch, C.-S. Chiu, and J.H. Miller, "Forward Modeling for Coastal Acoustic Tomography," International Conference on Theoretical and Computational Acoustics, Mystic, CT, 5-9 July, 1993. (Invited)
7. Chiu, C.-S., J.H. Miller, and J.F. Lynch, "Tomographic measurements of frontal variability in the Barents Sea," Denver ASA Meeting, 4-8 October, 1993. (Invited)
8. Chiu, C.-S., J.F. Lynch, and J.H. Miller, "Scattering from frontal structures, internal tides, and internal waves during the 1992 Barents Sea Polar Front Experiment," Denver ASA Meeting, 4-8 October, 1993. (Invited)
9. Chiu, C.-S., J.H. Miller, W.W. Denner, and J.F. Lynch, "A Three-Dimensional, Broadband, Coupled Normal-Mode Sound Propagation Modeling Approach," NATO Conference in Full Field Inversion Methods in Ocean and Seismic Acoustics, La Spezia, Italy, 1994. (Invited).
10. Chiu, C.-S., J.H. Miller, W.W. Denner, and J.F. Lynch, "Forward Modeling of the Barents Sea Tomography Vertical Line Array Data and Inversion Highlights," NATO Conference in Full Field Inversion Methods in Ocean and Seismic Acoustics, La Spezia, Italy, 1994. (Invited)
11. K. Von Der Heydt, J. Kemp, . J. F. Lynch, C.-S. Chiu, and J. H. Miller, "Real-time telemetry of acoustic array data for tomography and other applications," 127th Meeting of the Acoustical Society of America, Cambridge, June 6-10, 1994.

(Invited)

12. Lynch, J.F., G. Jin, R. Pawlowicz, D. Ray, C.-S. Chiu, J.H. Miller, R.H. Bourke, A.R. Parsons, A.J. Plueddemann, R. Muench, "Acoustic travel time perturbations due to shallow water internal waves and internal tides in the Barents Sea Polar Front: theory and experiment," 129th Meeting of Acoustical Society of America, Washington D.C., May 30-June 3, 1994. (Invited)

13. Chiu, C.-S. and J. F. Lynch, "Acoustic Tomography in Shallow Water," International Workshop on Ocean Acoustic Tomography," Yokosuka, Japan, March 13-14, 1997. (Invited)

14. Chiu, C.-S. and J.F. Lynch, "Acoustic Tomography in Shallow Water: Issues, Method and Experimental Results," International Conference on Shallow-Water Acoustics, Beijing, China, April 21-25, 1997. (Invited)

15. Denner, W.W., and C.-S. Chiu, "A report on the joint U.S.-China conference on shallow-water acoustics," International Conference on Shallow-Water Acoustics, Beijing, China, April 21-25, 1997. (Invited)

16. PRIMER Group (R.C. Beardsley, K.H. Brink, M.J. Caruso, C.-S. Chiu, G.G. Gawarkiewicz, J.F. Lynch, J.H. Miller, R. Pickart, A.R. Robinson and K.B. Smith, "Shelfbreak PRIMER - an integrated acoustic and oceanographic field study in the Middle Atlantic Bight," International Conference on Shallow-Water Acoustics, Beijing, China, April 21-25, 1997. (Invited)

17. SWARM Group (J. Apel, M. Badié, C.-S. Chiu, S. Finnête, R. Headrick, J. Kemp, J. Lynch, A. Newhall, M. Orr, B. Pasewark, D. Tielbuerger, A. Turgut, K. von der Heydt, S. Wolf, "The New Jersey shelf shallow-water acoustic random media propagation experiment (SWARM)," International Conference on Shallow-Water Acoustics, Beijing, China, April 21-25, 1997. (Invited)

18. SWARM Group (J. Apel, C.-S. Chiu, R. Headrick, J. Lynch, M. Orr, B. Pasewark, and S. Wolf), "Acoustic travel time and intensity fluctuations measured in the 1995 SWARM experiment," 133rd Meeting of the Acoustical Society of America, State College, Pennsylvania, June 15-20, 1997. (Invited)

19. Gawarkiewicz, G., R. Pickart, J.F. Lynch, C.-S. Chiu, K.B. Smith, and J.H. Miller, "The shelfbreak front PRIMER experiment," 133rd Meeting of the Acoustical Society of America, State College, Pennsylvania, June 15-20, 1997. (Invited)

20. Chiu, C.-S., C. W. Miller and J. F. Lynch, "Optimal modal beamforming of bandpass signals using an undersized, sparse vertical hydrophone array: theory and a shallowwater experimentation," 3rd International Conference on Theoretical & Computational Acoustics, Newark, New Jersey, July 14-18, 1997. (Invited)

21. Chiu, C.-S., "Using SOSUS to Track Whale Migration," International Advanced

Studies Institute Symposium on Detection and Analysis of Subsurface Objects and Phenomena, Monterey, California, 19-21 October, 1998. (Invited)

22. Chiu, C.-S., J.F. Lynch and G. Gawarkiewicz, "Shallow-water tomography: acoustic maps of the New England shelfbreak front," Joint 137th Meeting of the Acoustical Society of America, 2nd Convention of the European Acoustics Association, and 25th German Acoustics DAGA Conference, Berlin, Germany, March 14-19, 1999. (Invited)

23. Chiu, C.-S., J.F. Lynch and G. Gawarkiewicz, "Tomographic Maps of the New England Shelfbreak Front," 139th Meeting of the Acoustical Society of America, Atlanta, GA, 30 May-3 June, 2000. (Invited).

24. Chiu, C.-S., "Experiences with reactivated Pt. Sur site," SERDP IUSS Dual Uses Program Wrap-up Meeting, Federation of American Societies for Experimental Biology, Bethesda, MD, 28-29 September, 1999.

Contributed (since 1998)

1. Chiu C.-S., J. F. Lynch, G. Gawarkiewicz, C. W. Miller, and B. Sperry, "Tomographic Maps of the New England Shelfbreak Front," Ocean Science Meeting, San Diego, February, 1998.

2. Morvillez, T., C.-S. Chiu, C.A. Collins, "Monitoring temperature variability along the California coast using acoustic tomography," 16th International Congress on Acoustics and 135th Meeting of the Acoustical Society of America, Seattle, Washington, 20-26 June, 1998.

3. Chiu, C.-S., C.W. Miller, T.C. Moore, and C.A. Collins "Auto-detection and censusing of blue whale vocalizations along the central California Coast using a bottom-lying hydrophone array," Ocean International '99 Conference, Singapore, 27-29 April, 1999.

4. Han, S.-K., C.A. Collins, C.W. Miller, P. Worcester and C.-S. Chiu, "Tomography Observations of the Baroclinic Variability of the California Current System," American Geophysical Union Meeting, San Francisco, 15-19 December, 2000.

5. Han, S.-K., C. Collins, C. Miller, C.-S. Chiu, P. Worcester, "Mapping the regional variability of the California Current acoustically using a waveform inversion method," 139th Meeting of the Acoustical Society of America, Atlanta, GA, 30 May-3 June, 2000.

6. Chiu, C.-S., "Realistic Simulation Studies of Acoustic Signal Coherence in the Presence of an Internal Soliton Wavepacket," the IOS/WHOI/ONR Internal Solitary Wave Workshop, Victoria, B.C., Canada, October 27-29, 1998

Over 35 contributed conference presentations before 1998 (not listed).